WEATHER BUREAU MEN AS EDUCATORS.

The following lectures and addresses by Weather Bureau men are reported:

Mr. H. F. Alciatore, March 27, 1906, before the Science Department pupils, Little Rock, Ark., High School, on "The United States Weather Service and the weather map"; two later lectures, in April, are to complete the course.

Mr. E. A. Beals, January 20, 1906, before the Oregon State Academy of Sciences, on "General motions of the atmosphere," with lantern slide illustrations.

Mr. L. H. Daingerfield, March 23, 1906, at the Pueblo, Colo., High School, on "Weather proverbs and superstitions."

Mr. A. J. Mitchell, March 29, 1906, before the Southeastern Stock Growers' Association, in convention at Kissimmee, Fla., on "Climate and stock raising."

Mr. T. S. Outram, February 12, 1906, before the Searchlight Club of the Young Men's Christian Association, Minneapolis; also February 26, 1906, at the North High School, on "The Weather Bureau and its work"; also March 3, 1906, before one of the geology classes in the University of Minnesota, on "A half century of weather service."

Mr. C. F. von Herrmann, March 9, 1906, at the Deichmann Preparatory College, Baltimore, Md., on "How weather forecasts are made," with lantern slide illustrations.

Mr. F. J. Walz, March 3, 1906, at the Highland Presbyterian Church, Louisville, Ky., on "The methods of work of the Weather Bureau."

Classes from schools and academies have visited Weather Bureau offices, to study the instruments and equipment and receive informal instruction, as reported from the following offices:

Binghamton, N. Y., March 7 and 8, 1906, the physiography class of the local High School.

Minneapolis, Minn., March 22, 1906, a large class from the East High School.

Portland, Oreg., November 28, 1905, class from St. Helen's Hall; during December, 1905, and January, 1906, five classes or divisions from the local High School; March 28, 1906, the science class from St. Mary's Academy.

Pueblo, Colo., March 9, 1906, two classes in physiography from the Central High School.

Springfield, Mo., March 8 and 9, 1906, the physical geography class of the local High School, in two sections; also March 10, 1906, the physics class of the Republic, Mo., High School.

KITE FLIGHT OF APRIL 5, 1906, AT MOUNT WEATHER OBSERVATORY.

By Dr. O. L. FASSIG, Research Director. Dated Mount Weather, Va., April 11, 1906.

During the past three or four years an increasing number of national weather services in Europe have been cooperating in an effort to secure simultaneous records of atmospheric conditions at considerable elevations above the earth's surface. The methods employed to raise self-registering instruments thousands of feet into the upper atmosphere have varied at different stations, kites being used at some, while free or manned balloons were employed at other stations. In a few cases kites, small free balloons and manned balloons are sent up from the same station.

Up to the present time the only cooperating station in America has been the well-known Blue Hill Observatory, near Boston, Mass., under the direction of Mr. A. L. Rotch. The plan followed by international agreement has been to send up kites and balloons on the first Thursday of each month, and, when practicable, also on the preceding and the following day. As the national daily weather charts are in most cases prepared from data observed at an early morning hour, ascents are generally made in the morning so as to afford a more satisfactory basis of comparison of observations made at the earth's surface and at higher levels.

For two years or more the Chief of the Weather Bureau has been making active preparations at the recently established research station on Mount Weather, near Bluemont, Va., for the systematic exploration of the atmosphere at high levels; and the instrumental equipment is now such as to warrant the beginning of an attack upon problems which can be settled at a single station, and to cooperate in the investigation of problems which require for their solution the participation of many stations.

Thursday, April 5, was "International Day" for the month of April and marked the beginning of systematic kite flying at the Mount Weather Observatory. The day opened with an overcast sky and a fresh wind from the northwest. At 7:45 a. m., when the first kite of the day was launched, the surface wind was blowing at the rate of about 20 miles per hour (9 meters per second) and the kite rose rapidly and steadily, maintaining a good angle, averaging about 55°, with a length of line varying from 1000 to 5000 feet. Two kites of the Hargrave-Marvin pattern were attached to the wire, the second kite at a distance of 5000 feet from the first. The total lifting surface of the two kites was about 98 square feet (9 square meters). The wire employed was steel piano wire having a diameter of 0.028 inch or 0.71 millimeter.

The greatest elevation reached by the upper kite was 9000 feet above sea level, at 9:45 a. m., with 11,000 feet of line wire out. The elevation of the station is 1725 feet above sea level, and about 1300 feet above the level of the valley. The lowest temperature recorded (34° F.) occurred at an elevation of 7300 feet, the pressure at the same time registering 22.6 inches.

Shortly after the upper kite entered the layer of stratus cloud there was a rapid and marked rise in the temperature from 34° to 45° F. in three minutes. The humidity curve is particularly interesting. Corresponding in time with the sudden rise in temperature after entering the clouds there was a rapid drop in the humidity. The instrumental record is doubtless in error by an amount varying from 5 to 8 per cent in the lower portion of the scale, as the entire range of the humidity trace is slightly over 100 per cent. But allowing for the probable instrumental error the record still shows the existence of a remarkably dry stratum just above the thin layer of stratus cloud through which the upper kite passed.

The tabulated record of observed readings at the surface station and of transcribed readings from the tracings of the kite meteorograph is shown in Table 1.

The weather map of the Weather Bureau for 8 a. m. of the 5th of April indicated the presence of an area of high barometric pressure over the Gulf States and the South Atlantic States, and over the Rocky Mountain Plateau. There was a well developed barometric depression over the Gulf of St. Lawrence, and a secondary depression over the middle Mississippi Valley. The area of cloudiness embraced the entire country east of the Rocky Mountains, with the exception of the South Atlantic States and the eastern portions of the Middle Atlantic and New England States. Rain was reported at 8 a. m. over a wide area surrounding the center of the secondary depression in the Mississippi Valley. A light sprinkling rain was falling at Mount Weather, the only station east of the Ohio River reporting rain at the time of the morning observation. The temperature steadily decreased from about 60° F. in the Gulf States and South Atlantic States to 30° F. in the St. Lawrence Valley and the upper Lake region.

At 10:10 a. m. the upper kite, supporting the Marvin meteorograph, broke away. As the kite was hidden by the clouds at the time, the accident was not at once discovered. The decreased pull of the wire at the reel and the diminished angular elevation of the lower kite soon revealed the fact, however, that something was wrong. The wire was rapidly reeled in,